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10/004,826	12/07/2001	Tomohiko Ito	Q66566	7762

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SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037-3202

EXAMINER
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THOMPSON, JAMES A

ART UNIT	PAPER NUMBER
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2625

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07/24/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/004,826	<b>Applicant(s)</b> ITO, TOMOHIKO	
	<b>Examiner</b> James A. Thompson	<b>Art Unit</b> 2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Response to Arguments***

1. Applicant's arguments filed 07 May 2007 have been fully considered but they are not persuasive.

An underlying problem with the recited claim language has been brought out by Applicant's present arguments and the interpretations both Examiner and Applicant have been making with respect to the recited claim language. The problem lies with the particular limitation "a detection means *fixedly positioned in relation to said conveyed recording medium*" [emphasis added]. Examiner has attempted to use what appeared to be the proper meaning based on the disclosure in the present specification, namely that the detection means is fixedly positioned with respect to the X direction (perpendicular to the conveyance direction) position of the recording medium while the recording medium is conveyed across said fixedly positioned detection means. However, not only is this prior interpretation not recited in the claims, but the specification does not truly support the actual language that is recited in the claims. The detection means shown in the figures [element 4 of figures 1-3 – as mentioned on page 11, lines 1-2 – of the present specification] is fixedly positioned with respect to the apparatus, and perhaps with respect to the X direction (perpendicular to the conveyance direction) position of the conveyed recording medium, but not the conveyed recording medium itself. The conveyed recording medium moves with respect to the detection means. Thus, the detection means is *not* fixedly positioned with respect to the conveyed recording medium. In fact, it could be argued that the detection means is not at all fixedly positioned in relation to the conveyed recording medium since even the X direction position of the conveyed recording medium is subject to change if there is any nonuniformity of the recording medium in the X direction. The fixed position of the detection means in relation to the apparatus is definite, while the fixed position with respect to the X direction position of the conveyed recording medium is incidental to the recording medium passing by the detection means in a uniform manner.

As stated in the present specification, the CCD (4 – detection means) is fixed in position in the vicinity of the stopped thermal head while the recording medium is conveyed in the Y direction. The CCD reads the density correction pattern printed on the recording medium as the recording medium is conveyed [see figure 2 and page 12, line 7 to page 13, line 3 of present specification]. Thus, while the recording medium is conveyed for reading by the detection means, the detection means is fixedly positioned with respect to the thermal head and the apparatus as a whole, but not with respect to the recording medium. In fact, further on in the specification, it is stated that "the recording sheet P is conveyed in a direction that matches the direction in which the density pattern N has been recorded. This

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allows the fixed CCD 4 to detect the density pattern N, thus obtaining the shading correction data H. Thus, the necessity for a mechanism to move the CCD 4 in order to obtain the shading correction data is obviated" [see page 13, lines 20-23 of present specification]. Again, the clear description of the specification, along with the figures, demonstrates that the detection means is fixedly positioned in relation to the apparatus, not the conveyed recording medium. In fact, it is only in the summary of the specification in which it is stated that the detection means is fixedly positioned in relation to the conveyed recording medium [page 3, lines 18-19 of present specification], but this is in stark contrast to the description of the apparatus provided in the rest of the present specification, including the figures, and is not consistent with the described functioning of the apparatus.

So, for the sake of examining the claims over the prior art, Examiner will interpret "fixedly positioned in relation to said conveyed recording medium" to be "fixedly positioned in relation to the apparatus and in relation to the perpendicular direction of the conveyed recording medium" since this interpretation is consistent with the specification.

Furthermore, Examiner does agree with Applicant's analysis of the prior rejections with respect to the combination of Matsubara (US Patent 5,712,666) in view of Wise (US Patent 5,809,884), and therefore withdraws the rejections. However, additional prior art has been discovered which renders the claims obvious to one of ordinary skill in the art at the time of the invention. New rejections under 35 USC § 112 and the new prior art rejections are set forth below.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.** The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites "a detection means fixedly positioned in relation to said conveyed recording medium". This language is not supported by the present specification. As stated in the present specification, the CCD (4 – detection means) is fixed in position in the vicinity of the stopped thermal

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head while the recording medium is conveyed in the Y direction. The CCD reads the density correction pattern printed on the recording medium as the recording medium is conveyed [see figure 2 and page 12, line 7 to page 13, line 3 of present specification]. Thus, while the recording medium is conveyed for reading by the detection means, the detection means is fixedly positioned with respect to the thermal head and the apparatus as a whole, but not with respect to the recording medium. In fact, further on in the specification, it is stated that "the recording sheet P is conveyed in a direction that matches the direction in which the density pattern N has been recorded. This allows the fixed CCD 4 to detect the density pattern N, thus obtaining the shading correction data H. Thus, the necessity for a mechanism to move the CCD 4 in order to obtain the shading correction data is obviated" [see page 13, lines 20-23 of present specification]. Again, the clear description of the specification, along with the figures, demonstrates that the detection means is fixed with respect to the apparatus, not the conveyed recording medium. In fact, it is only in the summary of the specification in which it is stated that the detection means is fixedly positioned in relation to the conveyed recording medium [page 3, lines 18-19 of present specification], but this is stark contrast to the description of the apparatus provided in the rest of the present specification.

For the sake of examining the claims over the prior art, Examiner will interpret "fixedly positioned in relation to said conveyed recording medium" to be "fixedly positioned in relation to the apparatus and in relation to the perpendicular direction of the conveyed recording medium" since this interpretation is consistent with, and supported by, the specification.

Claims 2-15 are rejected under 35 USC §112, first paragraph due either to their dependence from claim 1 or their incorporation of the subject matter of claim 1.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**5. Claims 1-6, 8-9 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara (US Patent 5,712,666) in view of Jansen (US Patent 6,108,436).**

**Regarding claim 1:** Matsubara discloses an image recording apparatus (figure 44 and column 11, lines 53-55 of Matsubara) comprising an image drafting means (figure 7(34) of Matsubara) that drafts a line form image on a portion of a recording medium (column 12, lines 60-67 of Matsubara); a conveyance means ("driving means") that conveys said recording medium in a direction (Y direction) substantially perpendicular to the lengthwise direction (X direction) of said drafted line form image (column 12, lines 60-67 of Matsubara), wherein said image is recorded two-dimensionally on said recording medium by said conveyance means conveying said recording medium in said conveyance direction as said image drafting means drafts said line form image (figure 10 and column 12, lines 65-67 of Matsubara); and a detection means (figure 15(112-119,125) and column 16, lines 12-17 of Matsubara).

Matsubara does not disclose expressly that said detection means is fixedly positioned in relation to the apparatus and in relation to the perpendicular direction of a conveyed recording medium.

Jansen discloses a detection means (figure 3(12) and column 3, lines 37-44 of Jansen) fixedly positioned in relation to the apparatus and in relation to the perpendicular direction of a conveyed recording medium (figure 3(20); column 3, lines 48-50; and column 5, lines 5-11 and lines 35-40 of Jansen – The detection means only detects marks that appear within the viewing area. The marks are printed at a specific locations outside the area of the printed image. Thus, the detection means is fixedly positioned).

Matsubara and Jansen are combinable because they are from the same field of endeavor, namely the calibration of print image data in a continuous printing system. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a fixed-position detection means, as taught by Jansen. The motivation for doing so would have been to provide a simpler, faster, and cheaper means of print correction in a continuous printing system (column 2, lines 16-31 of Jansen). Therefore, it would have been obvious to combine Jansen with Matsubara to obtain the invention as specified in claim 1.

**Regarding claim 2:** Matsubara discloses that said image drafting means as well as said conveyance means are provided within a housing (figure 44 and column 28, lines 41-43 of Matsubara), and an opening is provided in said housing in the vicinity of the aforementioned conveyance means, extending in said conveyance direction (figure 44(1009) of Matsubara). Figure 44 of Matsubara shows a typical opening for a printer (figure 4(1009) of Matsubara) where the printed paper is ejected, and is thus in the vicinity of the aforementioned conveyance means, extending in said conveyance direction.

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**Regarding claims 3 and 4:** Matsubara discloses that said image drafting means is a thermal head (figure 17a(232) and column 17, line 65 to column 18, line 3 of Matsubara).

**Regarding claims 5/1-5/4:** Matsubara discloses that said conveyance means is capable of varying the conveyance speed of said recording medium (column 16, lines 1-11 of Matsubara). The distance, and thus the speed, of the recording medium depends upon the number of nozzles switched on. Thus, for a greater reduction in the number of nozzles used in the recording head, the slower the conveyance speed.

**Regarding claims 6/1-6/4:** Matsubara discloses recording a density pattern for shading correction on a recording medium (figure 10 and column 13, lines 34-42 of Matsubara); obtaining said recording medium on which said density pattern for shading correction has been recorded (column 13, line 65 to column 14, line 2 and column 14, lines 10-12 of Matsubara); conveying said recording medium having said density pattern recorded thereon in a direction that substantially matches the lengthwise direction of said density pattern (Y direction) (column 12, lines 60-67 of Matsubara); detecting said density pattern by a detection means (column 14, lines 10-14 of Matsubara); and obtaining shading correction data based on the detection result of said detection means (figure 9(S53) and column 14, lines 23-25 of Matsubara).

**Regarding claim 8:** Matsubara discloses providing a recording medium for recording an image (column 13, lines 34-38 of Matsubara); recording a density pattern on said recording medium (figure 10 and column 13, lines 34-42 of Matsubara); conveying said recording medium to move said density pattern (column 12, lines 60-67 of Matsubara) by a detector (figure 15 (112-119,125) and column 13, line 66 to column 14, line 5 of Matsubara); and detecting said density pattern with said detector (column 14, lines 10-14 of Matsubara) to obtain shading correction data (column 14, lines 23-25 of Matsubara).

**Regarding claim 9:** Matsubara discloses conveying said recording medium by a printer head to record an image on said recording medium corrected by the obtained shading correction data (column 13, line 66 to column 14, line 9 of Matsubara).

**Regarding claim 12:** Matsubara discloses that the recording medium is conveyed in a first direction for detecting said density pattern which is different than a second direction in which said recording medium is conveyed when said image is recorded (column 14, lines 2-7 of Matsubara). The test pattern is positioned such that it is read at right angles to the direction in which it was recorded (column 14, lines 2-7 of Matsubara). Thus, when said recording medium is read, said recording medium is conveyed at a direction perpendicular to that which said recording medium was conveyed when the test pattern was printed.

**Regarding claims 13-14:** Matsubara does not disclose expressly that the detection means is disposed adjacent to the drafting means and upstream of the drafting means in relation to the conveyance means, wherein the detection means is immediately adjacent to the drafting means.

Jansen discloses detection means (figure 3(12) of Jansen) that is disposed adjacent to drafting means (figure 1(5) of Jansen) and upstream of the drafting means in relation to the conveyance means (figure 1(6) of Jansen – conveyance means required for supplying paper web), wherein the detection means is immediately adjacent to the drafting means (figure 1 and column 3, lines 6-33 of Jansen – As can be seen in figure 1 of Jansen, the detection means (12) is immediately adjacent to the drafting means (5) and upstream of the drafting means in relation to the conveyance means (used to convey paper web supply (6))).

Matsubara and Jansen are combinable because they are from the same field of endeavor, namely calibration of print image data in a continuous printing system. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically dispose the detection means immediately adjacent to and upstream of the drafting means. The motivation for doing so would have been to decrease the amount of time required for calibration and processing by allowing the image patch reading to occur nearly simultaneously with the image patch printing. Therefore, it would have been obvious to combine Jansen with Matsubara to obtain the invention as specified in claims 13-14.

**Regarding claim 15:** Matsubara discloses that the image drafting means drafts a corrected line image based on a detecting of the detections means (column 15, lines 46-49 and column 16, lines 24-36 of Matsubara).

**6. Claims 7 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubara (US Patent 5,712,666) in view of Jansen (US Patent 6,108,436) and Rolleston (US Patent 5,416,613).**

**Regarding claim 7:** Matsubara discloses recording a density pattern for shading correction on a recording medium (figure 10 and column 13, lines 34-42 of Matsubara); obtaining said recording medium on which said density pattern for shading correction has been recorded (column 13, line 65 to column 14, line 2 and column 14, lines 10-12 of Matsubara); conveying said recording medium having said density pattern recorded thereon in a direction that substantially matches the lengthwise direction of said density pattern (Y direction) (column 12, lines 60-67 of Matsubara); detecting said density pattern by a detection means (column 14, lines 10-14 of Matsubara); obtaining shading correction data based on the detection result of said detection means (figure 9(S53) and column 14, lines 23-25 of Matsubara); and varying the



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conveyance speed of said recording medium (column 16, lines 1-11 of Matsubara). The distance, and thus the speed, of the recording medium depends upon the number of nozzles switched on. Thus, for a greater reduction in the number of nozzles used in the recording head, the slower the conveyance speed.

Matsubara in view of Jansen does not disclose expressly that said step of conveying is performed at a speed slower than the speed at which said density pattern was recorded.

Rolleston discloses that, after a large plurality (column 5, lines 50-59 of Rolleston) of color correction patches are printed (figure 2 and column 5, lines 39-50 of Rolleston), said color correction patches are carefully and individually read by a densitometer to generate a three-dimensional look-up table (column 5, lines 62-67 of Rolleston). Thus, the reading of said color correction patches is clearly a slower operation than the printing of said color correction patches.

Matsubara in view of Jansen is combinable with Rolleston because they are from the same field of endeavor, namely color and shading correction of printed digital image data through printing and scanning a plurality of test patches. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to carefully scan the printed correction patches with a densitometer, as taught by Rolleston. Thus, the scanning would be performed more slowly than the printing, so the step of conveying taught by Matsubara is performed at a speed slower than the speed at which said density pattern was recorded. The motivation for doing so would have been to provide for high accuracy measuring of colorimetric response (column 2, line 64 to column 3, line 4 of Rolleston). Furthermore, by performing high accuracy colorimetric measurements over the whole recording medium, color variations that are caused by spatial non-uniformities can be corrected, rather than falsely assuming that color variations are due to color space non-uniformities, thus improving the overall response of the printer (column 3, lines 4-15 of Rolleston). Therefore, it would have been obvious to combine Rolleston with Matsubara in view of Jansen to obtain the invention as specified in claim 7.

**Regarding claims 10-11:** Matsubara discloses varying the conveyance speed of said recording medium (column 16, lines 1-11 of Matsubara). The distance, and thus the speed, of the recording medium depends upon the number of nozzles switched on. Thus, for a greater reduction in the number of nozzles used in the recording head, the slower the conveyance speed.

Matsubara in view of Jansen does not disclose expressly that said recording medium is conveyed at a first speed when said density pattern is being detected and a second speed when said image is recorded, wherein a said first speed is slower than said second speed.

Rolleston discloses that, after a large plurality (column 5, lines 50-59 of Rolleston) of color correction patches are printed (figure 2 and column 5, lines 39-50 of Rolleston), said color correction

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patches are carefully and individually read by a densitometer to generate a three-dimensional look-up table (column 5, lines 62-67 of Rolleston). Thus, the reading of said color correction patches is clearly a slower operation than the printing of said color correction patches.

Matsubara in view of Jansen is combinable with Rolleston because they are from the same field of endeavor, namely color and shading correction of printed digital image data through printing and scanning a plurality of test patches. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to carefully scan the printed correction patches with a densitometer, as taught by Rolleston. Thus, the scanning would be performed more slowly than the printing, so said recording medium would be conveyed, as taught by Matsubara, at a first speed when said density pattern is being detected and a second speed when said image is recorded, wherein a said first speed is slower than said second speed, as taught by Rolleston. The motivation for doing so would have been to provide for high accuracy measuring of colorimetric response (column 2, line 64 to column 3, line 4 of Rolleston). Furthermore, by performing high accuracy colorimetric measurements over the whole recording medium, color variations that are caused by spatial non-uniformities can be corrected, rather than falsely assuming that color variations are due to color space non-uniformities, thus improving the overall response of the printer (column 3, lines 4-15 of Rolleston). Therefore, it would have been obvious to combine Rolleston with Matsubara in view of Jansen to obtain the invention as specified in claims 10-11.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hubble et al, US Patent 6,384,918 B1, Patented 07 May 2002, Filed 23 March 2000. Hubble also teaches much of the independent claims, including a fixedly positioned detection means.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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James A. Thompson  
Examiner  
Technology Division 2625

JAT  
18 July 2007



**DAVID MOORE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**